

PHYS-2011: General Physics I Laboratory

Syllabus — Spring 2021

Laboratory Location: Labs will be performed Remotely

Laboratory Manual: Instructions to carry out each experiment will be posted on D2L. They are also accessible at course web site:
<http://faculty.etsu.edu/lutter/courses/phys2011/index.htm>

Course Overview

General Physics I Lab is the first laboratory course in a two-semester sequence that covers the following main sections of classical physics: (1) **measurements**, including unit systems, scientific notation, significant digits, errors and uncertainties, length, time, and mass measurements, a trigonometry review, vectors, and graphs; (2) **mechanics**, including projectile motion, forces, and momentum; (3) **fluids**, which covers buoyancy; and (4) **thermal physics**, which covers temperature and heat. The “Measurements” topics are covered in experiments with the *Experiment #* prefix of **MEAS** in the table below. The “Mechanics” topics are covered in experiments with the **MECH** prefix, “Fluids” with **FLUID**, and “Thermal Physics” with the **THERM** prefix. The Lab Schedule on the back of this syllabus lists the labs that will be performed this semester. The Lab Instructions provided on the course web page (listed above) have either been written by faculty of the Department of Physics and Astronomy of East Tennessee State University or are modified versions of instructions provided by *PASCO*.

The main goal of this course is to demonstrate the techniques used to carry out experimental physics. Besides learning measurement techniques, the student will be trained to be very detailed in raw data collection and analysis. You will need to solve equations (just as you do in the lecture course) and come up with numerical solutions to these equation. **As such, you are expected to have (and know how to use) a good scientific calculator.** The Department does not have calculators to loan — the *sharing* of calculators during lab period is frowned upon. The book store carries such calculators.

The laboratory experiments performed in this course complement the material covered in the **General Physics I** lecture course (PHYS-2010). Note however that the lecture course and the laboratory course are graded **independently** of each other — the grade earned in this course (PHYS-2011) does not affect the grade eared in PHYS-2010 and vise-versa.

Due to the *Coronavirus Pandemic*, this course is being offered in a *remote* (*i.e.*, online) format for the Spring 2021 semester. The Online Laboratory Experiments can be found on the course web page listed above.

The lab instructor for each section of PHYS-2011 will inform their class of an alternative to office hours. This information will be announced on the course page in D2L.

Laboratory Reports and Attendance

Your course grade is based upon the total scores received on your **Laboratory Reports**. The **Laboratory Report PDF** files can be found on the course web page listed on Page 1 of this syllabus. Lab Reports are to be submitted into the associated **Dropbox** on the course D2L page by **6 p.m. eastern time** on the **Due Date** listed on the Lab Schedule on the next page. **You must complete each lab!**

You are to do your own work on your lab report! If any duplicate lab reports are submitted, all of the students submitting these labs including the original will receive a zero for that lab. Lab reports will have 2 points (out of 10 total) deducted if submitted a week late. **Once that week late mark has passed, you will automatically receive a ZERO for that lab.** Your final grade will be based on the percentages listed on the Lab Schedule on the next page.

Additional Information

These Online Labs are designed to be download from the course web page (listed on Page 1) or the course D2L web page, and opened up using PDF software like Adobe Reader or Preview. You can then type your responses into the blanks electronically, save it and then upload to a **Dropbox** setup in D2L by the **Due Date**. Alternatively, you can print it out, complete it in writing (*i.e.*, by hand), scan it or take a photo of it, then upload to the **Dropbox** setup on the course D2L page by the **Due Date**.

If you encounter problems, see the document:

Tips for Viewing and Using Fillable PDFs.

This document on the course web page at

<http://faculty.etsu.edu/lutter/courses/phys2011/index.htm>.

PHYS-2011: General Physics I Lab Spring 2021 Schedule

Week	Experiment Title	Exp. #
Jan 19 – 22	Measurement Lab	MEAS-1-Online
Jan 25 – 29	Measurement Quiz	MEAS-1-Quiz
Feb 1 – 5	Vectors and The Force Table	MEAS-3-Online
Feb 8 – 12	Projectile Motion	MECH-1-Online
Feb 15 – 19	*** NO LAB - MINI BREAK ***	
Feb 22 – 26	Newton's Laws and Friction	MECH-2-Online
Mar 1 – 5	Atwood Machine	MECH-4-Online
Mar 8 – 12	Conservation of Energy	MECH-6-Online
Mar 15 – 19	*** NO LAB - MINI BREAK ***	
Mar 22 – 26	Conservation of Momentum	MECH-3-Online
Mar 29 – Apr 2	*** NO LAB - GOOD FRIDAY ***	
Apr 5 – 9	Centripetal Force	MECH-7-Online
Apr 12 – 16	Buoyancy	FLUID-1-Online
Apr 19 – 23	Specific Heat	THERM-1-Online

Lab grades are determined by your performance on the Measurement Lab and Quiz (each worth 10 points), and 9 additional online lab experiments (worth 10 points each). There are thus a total of up to 110 points possible with the grade scale of:

A	→	92.00-100%	→	102 or more points
A-	→	90-91.99%	→	99-101 points
B+	→	87-89.99%	→	96-98 points
B	→	83-86.99%	→	92-95 points
B-	→	80-82.99%	→	88-91 points
C+	→	77-79.99%	→	85-87 points
C	→	73-76.99%	→	81-84 points
C-	→	70-72.99%	→	77-80 points
D+	→	67-69.99%	→	74-76 points
D	→	60-66.99%	→	66-73 points
F	→	Less than 60%	→	65 points or less